Supplementary Information S1 | **Helping patients, family and friends interpret this *Perspective* article.**

This section aims to help non-specialist clinicians and interested lay people understand our key research priorities, and communicate our excitement about potential breakthroughs in tackling the highly complex high-grade serous ovarian cancer, HGSOC.

1. **Background**

   We need to understand the biology of the cancer to devise better approaches to therapy. The first section of the article summarizes our latest understanding of the 'molecular wiring' that drives the malignant cells.

2. **Experiments**

   To rapidly and efficient test new treatments we need high-quality cell and mouse models of HGSOC that closely resemble the disease in humans. These models have improved enormously but further coordinated development is needed.

3. **Immune system responses**

   We now know that we the immune system has the capacity to fight cancer, but the malignant cells usually prevent this from happening. Understanding the interactions between malignant cells and the immune system in HGSOC is key to igniting an effective response. There have been exciting responses to the new types of immunotherapy melanoma and lung cancer and the experiments proposed in this article will help us understand if and how these treatments may work in HGSOC. As a group, we aim to develop a standardized approach to measuring and scoring immune responses in HGSOC tumors, to help comparison between clinical trials and to personalize treatments.

4. **Understanding chemotherapy resistance**

   Many women experience excellent responses to initial treatment, but the cancer adapts and evolves, in part due to pre-existing genetic diversity within the tumor. Joint efforts in collecting tumor samples during relapse will lead to a better understanding of why this happens. There are also opportunities to learn from those rare patients, 'super responders', who have a much longer period of disease remission than the norm.

5. **Clinical trials**

   Clinical trials have typically assumed all HGSOC are the same; however, we now know there is considerable molecular diversity. Future trials must adapt to this new

knowledge and find ways of targeting key elements of the cancer that have emerged from laboratory studies.

6. **Prevention strategies**

   We already know of approaches that give us an opportunity to reduce deaths from ovarian cancer. These include improved genetic testing of healthy family members and the use of oral contraceptives.

7. **Surgery**

   Although seemingly straight-forward, much is still to be learned about best approaches to the timing and extent of surgical intervention in HGSOC, in order that treatment can be truly personalized to patients.

8. **Conclusion**

   We are at an exciting point in cancer research where for the first time we are approaching a complete list of the various molecular events that drive human cancers, including HGSOC. However, just as simply knowing the parts of a computer doesn't explain its ability to function, we need to integrate our knowledge of the parts of HGSOC in order to explain each person's cancer. Further background information for the lay audience can be found at www.ovarian.org.uk, including a glossary of terms used in this document.